

REMARKS

Claims 1 through 3, 5, 6, 8 through 20, 22, 23 and 25 through 34 are currently pending in the application.

Claims 9 through 17 and 26 through 34 are withdrawn from consideration as being directed to a non-elected inventions.

This amendment is in response to the Office Action of June 17, 2004.

35 U.S.C. § 101 Claim Rejections

Claims 1 through 3, 5 through 8, 18 through 20 and 22 through 25 are rejected under 35 U.S.C. § 101 because the claimed invention due to the fact that the scope of the claims is directed to both statutory classification i.e., “an assembly” and “an apparatus”.

Applicants have amended the claimed inventions of claims 1 through 3, 5 through 8, 18 through 20, and 22 through 25 to clearly set forth that the invention being claimed is an assembly having an apparatus Accordingly, Applicants assert that such claims clearly comply with the provisions of 35 U.S.C. § 101.

35 U.S.C. § 112 Claim Rejections

Claims 1 through 3, 5 through 8, 18 through 20 and 22 through 25 are rejected under 35 U.S.C. § 112, first paragraph, as containing subject matter which was not described in the specification in such a way as to reasonably convey to one skilled in the relevant art that the inventor(s), at the time the application was filed, had possession of the claimed invention. Applicants respectfully traverse this rejection, as hereinafter set forth.

Claims 1 through 3, 5 through 8, 18 through 20 and 22 through 25 are rejected under 35 U.S.C. § 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which Applicants regard as the invention.

Applicants have amended the claimed invention as suggested by the Examiner for the presently claimed invention to particularly point out and distinctly claim the subject matter of the invention to comply with the provisions of 35 U.S.C. § 112. Therefore, presently amended claims 1 through 3, 5 through 8, 18 through 20 and 22 through 25 are allowable under the provisions of 35 U.S.C. § 112.

35 U.S.C. § 103(a) Obviousness Rejections

Obviousness Rejection Based on Sakemi et al. (U.S. Patent 5,655,704) in view of Yeh et al. (U.S. Patent 5,607,099)

Claims 1 through 3, 6 through 8, 18 through 20 and 23 through 25 are rejected under 35 U.S.C. § 103(a) as being unpatentable over Sakemi et al. (U.S. Patent 5,655,704) in view of Yeh et al. (U.S. Patent 5,607,099). Applicants respectfully traverse this rejection, as hereinafter set forth.

Applicants further submit that to establish a *prima facie* case of obviousness under 35 U.S.C. § 103 three basic criteria must be met. First, there must be some suggestion or motivation, either in the references themselves or in the knowledge generally available to one of ordinary skill in the art, to modify the reference or to combine reference teachings. Second, there must be a reasonable expectation of success. Third, the cited prior art reference must teach or suggest all of the claim limitations. Furthermore, the suggestion to make the claimed combination and the reasonable expectation of success must both be found in the prior art, and not based on Applicants' disclosure.

Applicants assert that any combination of the Sakemi et al. reference and the Yeh et al. reference does not and cannot establish a *prima facie* case of obviousness under 35 U.S.C. § 103 regarding the presently claimed inventions because, at the very least, there is no suggestion or motivation, either in the references themselves or in the knowledge generally available to one of ordinary skill in the art, to modify the Sakemi et al reference or to combine the reference teachings, there has been no showing of a reasonable expectation of success for any combination of the cited prior art, and any combination of the cited prior art does not teach or suggest all of the claim limitations.

Turning to the cited prior art, the Sakemi et al. reference teaches or suggests a solder ball mounting apparatus using a template 4 to position solder balls 3 from a hopper 12 onto pads 2a of a substrate 2. There is no teaching or suggestion in the Sakemi et al. reference to dispense solder paste from the hopper 12 into or through a template 4 onto the substrate 2.

The Yeh et al. reference teaches or suggests a carrier device 10 having cavities 12 in a surface for transferring solder paste 14 thereinto to be heated into solder balls 16 to attach the

solder balls 16 to the solder pad 20 of a flip chip 18. There is no teaching or suggestion in the Yeh et al. reference for having solder balls dispensed into the cavities 12 of the carrier device 10.

Applicants assert that there is no suggestion whatsoever in the Sakemi et al reference itself or in the knowledge available in the art to modify the template 4 such as set forth in the claimed inventions of a substrate having an upper surface, and bearing conductive sites comprising one of recessed sites and level sites with respect to said upper surface.

Applicants assert that independent claims 1 and 18 to clearly set forth as claim limitation an element of the presently claimed invention a substrate which has electrical contacts which do not protrude from the surface of the substrate calling for “a substrate having an upper surface, and bearing conductive sites comprising one of recessed sites and level sites with respect to said upper surface”. With regard to the claims as amended, the Sakemi et al. reference fails to teach or suggest the claim limitations calling for “a substrate having an upper surface, and bearing conductive sites comprising one of recessed sites and level sites with respect to said upper surface.” Support for the amendment can be found in the specification, page 8, lines 13 through 17: “The method of the invention may be applied to the placement of conductive spheres 12 on any conductive site¹⁴, whether the site, e.g. bondpad projects from the substrate 20 or is recessed therein.”

The Sakemi et al. reference, on the other hand teaches or suggests “contacts” which stand out from the surface of the substrate. Note that the reference illustrates only electrical contacts which stand out from the surface. See Fig. 4. Furthermore, language in the reference indicates that it does not contemplate recessed bond pads. For example, as recognized in Applicants’ disclosure, the use of recessed contacts may eliminate the need for applying flux to the surface of the contacts. See page 5, lines 22 through 24, where the specification sets forth that flux may not be needed when using “recessed bondpads.” In contrast, in column 4, lines 57 and 58, Sakemi indicates that with respect to the invention described therein, flux is required (“[f]lux is applied beforehand to the top of each electrode on the workpiece”). Other parts of Sakemi support the idea that the application of flux is a requirement, such as column 6, lines 23 through 27, in which it is indicated that flux is applied to prevent the solder ball from “dislocating from the electrode.”

Additionally, the Yeh et al. reference substrate merely has recesses to hold solder paste, not solder balls dispensed thereinto. There is no suggestion for any use of the Yet et al. reference to modify the Sakemi et al. reference except Applicants' disclosure.

Further, there has been no showing of success for any combination of the Sakemi et al. reference and the Yet et al. reference. Applicants assert that there can be no successful combination thereof because the cited prior art teaches away from any combination. Applicants assert that any combination of the cited prior art would result in the Sakemi et al. reference being modified to dispense solder paste through the template 4 into the substrate cavities 12 of the Yeh et al. reference. Such would destroy the Sakemi et al. reference because it only teaches or suggests the dispensing of solder balls 3, not solder paste.

Applicants respectfully submit that claims 1 and 18 are thus allowable, and claims 2, 3, 6 through 8, 19, 20 and 23 through 25 are allowable as depending from allowable independent claims 1 and 18 because any combination of the cited prior art does not and cannot establish a *prima facie* case of obviousness under 35 U.S.C. § 103 regarding the claimed invention because the cited prior art does not provide any motivation for any modification of the Sakemi et al. reference, there has been no showing of success for any modification of the Sakemi et al. reference since the cited prior art teaches away from any combination thereof, and any combination of the cited prior art does not teach or suggest the claim limitations of the presently claimed invention.

Obviousness Rejection Based on Sakemi et al. (U.S. Patent 5,655,704) in view of Yeh et al. (U.S. Patent 5,607,099)

Claims 5 and 22 are rejected under 35 U.S.C. § 103(a) as being unpatentable over Sakemi et al. (U.S. Patent 5,655,704) in view of Yeh et al. (U.S. Patent 5,607,099). Applicants respectfully traverse this rejection, as hereinafter set forth.

Applicants again assert that to establish a *prima facie* case of obviousness under 35 U.S.C. § 103 three basic criteria must be met. First, there must be some suggestion or motivation, either in the references themselves or in the knowledge generally available to one of ordinary skill in the art, to modify the reference or to combine reference teachings. Second, there

must be a reasonable expectation of success. Third, the cited prior art reference must teach or suggest all of the claim limitations. Furthermore, the suggestion to make the claimed combination and the reasonable expectation of success must both be found in the prior art, and not based on Applicants' disclosure.

Applicants assert that dependent claims 5 and 22 are allowable as they depend from allowable independent claims; i.e., independent claims 1 and 18 for the reasons set forth herein.

In summary, Applicants submit that claims 1 through 3, 5, 6, 8, 18 through 20, 22, 23 and 25 are clearly allowable over the cited prior art.

Applicants request the allowance of claims 1 through 3, 5, 6, 8, 18 through 20, 22, 23 and 25 and the case passed for issue.

Respectfully submitted,



James R. Duzan
Registration No. 28,393
Attorney for Applicant(s)
TRASKBRITT
P.O. Box 2550
Salt Lake City, Utah 84110-2550
Telephone: 801-532-1922

Date: September 17, 2004
JRD/sls:djp
Document in ProLaw